Ultrastar™ 7K3000

3.5-INCH ENTERPRISE HARD DISK DRIVES

HITACHI
Inspire the Next

World's first shipping enterprise-class, 7200 RPM drive rated at 2M hours MTBF[1] for capacity-optimized environments

Highlights

- 2.0 million hours MTBF
- Up to 3 terabytes[2] of capacity
- 6Gb/s SATA and 6Gb/s SAS models for configuration flexibility
- Dual Stage Actuator (DSA) and Enhanced Rotational Vibration Safeguard (RVS) for robust performance in multi-drive environments
- 24x7 enterprise-class 50% duty cycle for capacity-optimized applications
- 5-year limited warranty

Applications/Environments

- Cloud storage
- Massive Scale Out (MSO)
- Data warehousing & mining
- Disk-to-disk backup & archiving
- RAID arrays
- Network Attached Storage (NAS)

3TB and 2TB | 7200 RPM
SATA 6Gb/s & SAS 6Gb/s

Delivering industry-leading quality and reliability

The Hitachi Ultrastar™ 7K3000 is the world's first and only 7200 RPM hard drive rated at 2.0 million hours MTBF and backed by a five-year limited warranty. The Ultrastar 7K3000 represents the fifth-generation Hitachi 5-platter mechanical design, first introduced in 2004, and has been field proven by top server and storage OEMs as well as leading Internet giants. When the highest quality and reliability are a top requirement, customer field data proves that the Ultrastar 7K3000 delivers by reducing downtime, eliminating service calls and keeping TCO to a minimum. Engineered for the highest reliability, the Ultrastar 7K3000 is not only put through grueling design tests during development but must also pass stringent ongoing reliability testing during manufacturing. Across the entire Ultrastar family, world-class quality control, combined with scientific root-cause analysis and multi-faceted corrective actions, ensure that Hitachi GST remains the recognized leader in quality and reliability for enterprise-class hard drives.

Increasing capacity density by 50%

Recent measures such as data de-duplication and thin provisioning have not been able to stem the explosive petabyte (PB) growth requirements in cloud storage and data centers. Pervasive Internet computing with remotely stored email, pictures and social media, all being accessed from light-weight tablet and notebook computers, is changing consumer expectations. Ongoing worldwide government data retention regulations and security requirements are also driving up data center and private cloud storage needs. At the same time, tile space and megawatts remain at a premium, while in some highly built-out metropolitan areas both are at an absolute "no-growth" state. To meet these demands, the Ultrastar 7K3000 delivers 50% more capacity in the same footprint and does so at a 32% reduction in watts/GB versus our prior generation Ultrastar A7K2000 product. It is now possible to achieve a colossal 1.8 PB in the footprint of a standard 19-inch enterprise storage rack by stacking ten 4U, 60-bay enclosures.

Offering choices of interface and encryption

The Hitachi Ultrastar 7K3000 is the first Hitachi 7200 RPM drive available in both 6Gb/s SATA and 6Gb/s SAS interfaces and also available in two encryption options. The Ultrastar 7K3000 SATA model integrates easily with legacy SATA and Fibre Channel to SATA environments. The Ultrastar 7K3000 SATA model is available with a bulk data encryption (BDE) option. The Ultrastar 7K3000 dual-port SAS model is targeted at emerging 6Gb/s SAS enterprise infrastructure and is available with industry standard TCG Enterprise_A encryption. When enabled, both of these hardware-based implementations encrypt all data on the drive using a private security key as it is written to the disk, and then decrypt it with the key as it is retrieved, giving users an extreme level of data protection. These security options not only protect sensitive data but also reduce the time and effort involved in re-deploying hard drives since without the key, the data is unrecoverable.

Combining 7200 RPM performance and granular power control

Operating at 7200 RPM, the Hitachi Ultrastar 7K3000 offers better overall performance than slower RPM capacity-oriented drives, and does so at impressively low power consumption rates. When compared to Hitachi's previous generation Ultrastar A7K2000, the 7K3000 is up to 3 times faster in sustained data transfer rates. The Ultrastar 7K3000 can help data centers achieve lower AC power and HVAC requirements. With five Advanced Power Management modes, the Ultrastar 7K3000 achieves a 59% reduction in watts during low RPM idle mode, and uses less than 1W during standby/sleep modes, freeing up precious headroom for growing enterprise needs.

Innovating for a more sustainable environment

The Ultrastar 7K3000 demonstrates Hitachi ecological leadership with its halogen-free design and power-efficient operation. Both these features serve to qualify the drive for the Hitachi EcoTrac classification, which identifies products that minimize environmental impact in the areas of product design, manufacturing, operation and disposal.

Specifications

Model(s)	SATA models HUA723030ALA640 HUA723030ALA641 HUA723020ALA640 HUA723020ALA641	SAS models HUS723030ALS640 HUS723030ALS641 HUS723020ALS640 HUS723020ALS641
Configuration		
Interface	SATA 6Gb/s	SAS 6Gb/s
Capacity (GB)[2] at 512 Bytes/sector	3TB / 2TB	←
Form factor	3.5-inch	←
Sector size (bytes)	512	512 / 520 / 528
Max. areal density (Gbits/sq. in)	369 / 360	←
Performance		
Data buffer (MB)[3]	64	←
Rotational speed (RPM)	7200	←
Interface transfer rate (MB/sec, max)	600	←
Sustained transfer rate (MB/sec, typical)	152	←
Seek time (read, ms, typical) [4]	8.2	←
Reliability		
Error rate (non-recoverable, bits read)	1 in 10^{15}	←
Load/unload cycles (at 40° C)	600,000	
Availability (hrs/day x days/wk)	24x7	
MTBF[1] (M hours)	2.0	←
Availability (hrs/day x days/wk)	24x7	←
Warranty (yrs.)	5	←
Acoustics		←
Idle (Bels, typical)	2.9	←
Power		
Requirement	+5 VDC (+/-5%) +12 VDC (+10%/-8%)	←
Startup current (A, max.)	2.4 (+12V), 4.5 (+5V)	←
Read/write (W)	11.3	12.3
Unload idle (W)	5.6	6.6
Physical size		
z-height (mm)	26.1	←
Dimensions (width x depth, mm)	101.6 (+/-0.25) x 147	←
Weight (g, max)	690	←
Environmental (operating)		
Ambient temperature	5° to 60° C	←
Shock (half-sine wave 2 ms, G)	70	←
Vibration, random (G RMS 5 to 500 Hz)	0.67 (XYZ)	←
Environmental (non-operating)		
Ambient temperature	-40° to 70° C	←
Shock (half-sine wave, G)	300	←

1 Intended for use in lower duty cycle environments in the enterprise storage hierarchy such as nearline applications. This MTBF rating is based on a sample population and is estimated by statistical measurements and acceleration algorithms under nominal operating conditions. MTBF ratings are not intended to predict an individual drive's reliability. MTBF does not constitute a warranty.
2 One GB is equal to one billion bytes and one TB equals 1,000GB (one trillion bytes) when referring to hard drive capacity. Accessible capacity will vary from the stated capacity due to formatting and partitioning of the hard drive, the computer's operating system, and other factors.
3 Portion of buffer capacity used for firmware.
4 Excludes command overhead

Hitachi quality and service

Hitachi's Ultrastar 7K3000 extends the company's long-standing tradition of performance and capacity leadership. The proven drive design enables high reliability and availability to customer data. Ultrastar quality, performance and world class technical support and service provides customers with a lower total cost of ownership over previous generations.

Hitachi drives are backed by an array of technical support and services, which may include customer and integration assistance. Hitachi is dedicated to providing a complete portfolio of HDD/SSD solutions to satisfy today's monumental computing needs.

How to read the Ultrastar model number

HUA723030ALA640 = 3TB, SATA 6Gb/s, 64MB buffer
H = Hitachi
U = Ultrastar
A = ATA (S = Standard)
72 = 7200 RPM
30 = Full capacity — 3TB
30 = Capacity this model, 30 = 3TB (20 = 2TB)
A = Generation code
L = 25.8mm z-height
A6 = Interface, SATA 6Gb/s (S6 = SAS 6Gb/s)
4 = 64MB buffer
0 = No encryption (1 = encryption)

Information and Technical Support

www.hitachigst.com (Main Web site)
www.hitachigst.com/partners (Partner Web site)

North America
support_usa@hitachigst.com
Toll free: 1 888 426-5214, Direct: 1 507 322-2370

Asia Pacific
support_ap@hitachigst.com / 65 6840 9595

EMEA and UK
support_uk@hitachigst.com / 44 20 7133 0032

Germany
support_uk@hitachigst.com / 49 6929 993601

Program Support
Partners First™ Program
channelpartners@hitachigst.com

Hitachi Global Storage Technologies trademarks are intended and authorized for use only in countries and jurisdictions in which Hitachi Global Storage Technologies has obtained the rights to use, market and advertise the brand. Contact Hitachi Global Storage Technologies for additional information. Hitachi Global Storage Technologies shall not be liable to third parties for unauthorized use of this document or unauthorized use of its trademarks.

References in this publication to Hitachi Global Storage Technologies' products, programs, or services do not imply that Hitachi Global Storage Technologies intends to make these available in all countries in which it operates.

Product specifications provided are sample specifications and do not constitute a warranty. Information is true as of the date of publication and is subject to change. Actual specifications for unique part numbers may vary. Please visit the Support section of our website, www.hitachigst.com/support, for additional information on product specifications. Photographs may show design models.

© 2011 Hitachi Global Storage Technologies

Hitachi Global Storage Technologies
3403 Yerba Buena Road
San Jose, CA 95135 USA

Produced in the United States 1/11. All rights reserved.

Ultrastar™ is a trademark of Hitachi Global Storage Technologies.

The EcoTrac symbol identifies Hitachi hard drives that deliver on the principles of lower operating costs, safer product disposal and a more sustainable environment.

Hitachi Global Storage Technologies